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SCIENCE NEWS LETTER

THE WEEKLY JOURNAL OF CURRENT SCIENCE



Titanic Gems

See Page 243

A SCIENCE SERVICE PUBLICATION

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We invite your aid in the
ANNUAL SCIENCE TALENT SEARCH

You may already be familiar with the Science Talent Search—an annual contest sponsored by the Westinghouse Educational Foundation to discover and encourage scientific ability among high school seniors. If so, we solicit your continued aid and encouragement to boys and girls showing promise in the field of science. If not, we would like to send you full information so you may aid qualified students.

Briefly, the Science Talent Search includes scholarship awards totaling \$11,000, plus five-day, all-expense trips to Washington, D. C., for the 40 finalists. Selection of winners is based on a Science Aptitude Examination, scholastic standing, the high school teacher's recommendation, and a 1,000-word essay on "My Scientific Project".

There is still time for students to enter the 1947 contest. As a contribution to America's scientific future, we invite your interest and co-operation. For further information, write to the address below.

G-10016

*Other Westinghouse
 Scholarships*

George Westinghouse Scholarships in Engineering—ten \$2,200 scholarships at Carnegie Institute of Technology, awarded annually to boys with exceptional mental ability, engineering aptitude and leadership qualities.

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Westinghouse

For full information on these scholarships,
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CHEMISTRY

New Synthetic Gems Made

They are true night stones because they are far more brilliant under ordinary electric lamps than under daylight. These gems are a new discovery.

See Front Cover

► **TITANIA** night stones, a new synthetic gem with a play of colors equal to a fine opal and the fire and brilliancy of a diamond have been developed at the titanium division of the National Lead Company research laboratories, South Amboy, N. J., Dr. Roy Dahlstrom, the director, has revealed.

No name has yet been adopted for them either by the laboratory or by Dr. Charles H. Moore who carried out the development. They are true night stones because they are far more brilliant under ordinary electric lamps than under daylight, as shown on the cover of this week's *SCIENCE NEWS LETTER*. Their primary use will probably be for ornaments worn with evening gowns, but they have possible industrial applications.

Titanium is a very plentiful and widely distributed metal, never found free but only in compounds. The principal ones are ilmenite and rutile. Titanium oxide, from these, has become the principal white pigment used in paints. Rutile is used in welding-rod coatings and in alloys and carbides. Pure titanium, now produced experimentally by the U.S. Bureau of Mines, has a promising future as a structural material.

The new gems are cut from boules made of rutile under intense heat in a special automatic equipment developed by Dr. Moore. In this the process differs from the manual operation of the furnaces and burners used for synthetic sapphires and rubies. Under this heat pure rutile is grown into a mass resembling a small icicle, or boule. Boules have been made weighing 125 carats and more.

Truly a new gem, this clear synthetic rutile is in no way an imitation of anything. Rutile found in nature has a red or brown color and the only rarely discovered natural gems of rutile are semi-translucent. These clear transparent rutile gems can be produced in colors ranging from red through yellows to deep blues.

The research, which culminated in the development of these gems, was initiated to determine the true color of rutile.

Rutile pigments used to give the brightness and whiteness to paints have a slightly yellow tone. Since no way was found to determine the true color from the small pigment particles, larger pure crystals were required.

Pure rutile crystals may have other uses in addition to that of gems. Industrial uses have not yet been investigated due to the present limited laboratory production. Their atomic structure of the mineral indicates the possibility of excellent electrical, optical and sonic properties.

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AERONAUTICS

Jet-Propelled Flying Wing Ready for Its First Tests

► **THE** American jet-propelled Flying Wing bomber will probably take to the air earlier than a similar British plane which, however, is primarily a commercial craft.

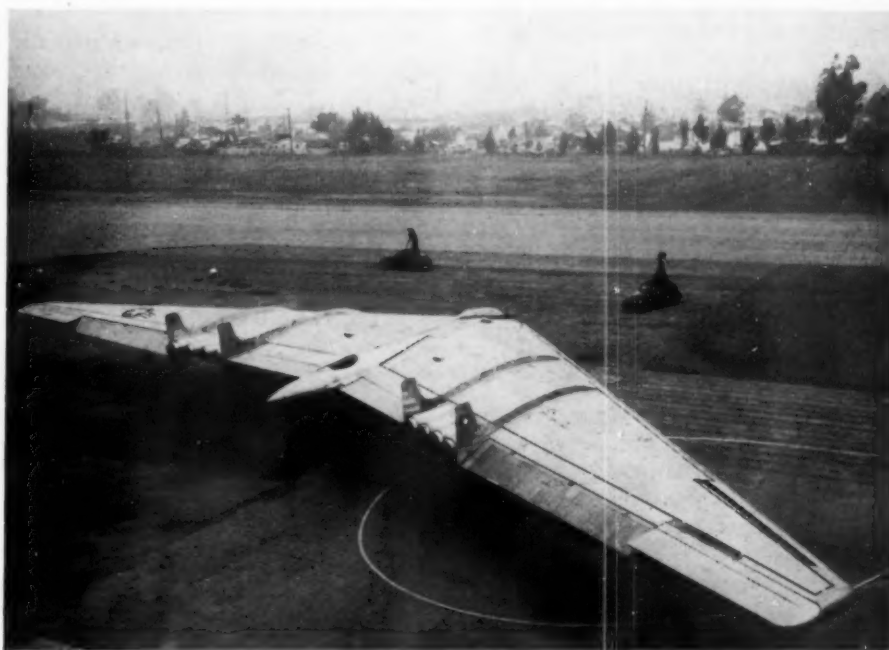
The first of the Northrop Flying Wing jet bombers is ready for ground and taxi tests following which its maiden flight will be made. It is a jet brother of the earlier Flying Wing bomber and cargo plane which has four conventional engines and revolving pusher propellers. This latter is the Army XB-35; the new jet-propelled version is the YB-49.

Both types of Northrop Flying Wings have a span of 172 feet. They are all wings; no tail, and no familiar fish-shaped body. They are the nearest approach in airplanes to a craft consisting only of a pure supporting surface, thus reducing drag to a minimum. Both are successors of several experimental models.

Few details have been revealed relative to the British Flying Wing except that it resembles, but is much larger than, a 6,000-pound glider version used in flight studies, and that it is expected to be able to cross the Atlantic in from seven to eight hours.

The American Army YB-49 is powered by eight jet engines producing the equivalent of 32,000 horsepower. This is about three times the horsepower of its propeller-driven counterpart, the XB-35. The weight of the giant plane is over 88,000 pounds, and its service ceiling will be in excess of 30,000 feet.

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EIGHT JET BOMBER—This is the Northrop Flying Wing YB-49. This giant is expected to operate at altitudes in excess of 30,000 feet. All crew quarters, cargo space and power plants are housed wholly within the wing.

DENTISTRY

New Attack on Caries

A plan has been proposed to add a simple, tasteless chemical to all sugar at the refineries as a means of banishing tooth decay at its source.

➤ YOU will be protecting yourself against toothache and tooth decay with every piece of candy you eat and every lump of sugar you drop in your coffee in the future, if a plan proposed at the American Public Health Association in Atlantic City goes into effect.

The plan calls for addition of a simple, tasteless chemical to all sugar at the refineries. It was proposed, as a means of banishing tooth decay at its source, by Dr. L. S. Fosdick of Northwestern University Dental School. (*Journal of Dental Research*, Vol. 26, No. 4.)

It is hailed as "the greatest hope for mass control of caries (tooth decay)" yet found by Dr. Hamilton Robinson, of Ohio State University College of Dentistry and editor of the *Journal*.

Tests of 31 chemicals which might be used in the plan are reported by Dr. Fosdick.

The best so far is one called glycerol aldehyde. This is a triose sugar which is a natural constituent of all muscle. It is harmless, has no objectionable taste and would mix readily with sugar.

It would stop tooth decay by checking the ferment which causes acid to be formed from sugar in the mouth. The acid, if not promptly neutralized, breaks down tooth enamel, removing the calcium, or lime, which makes it hard. Cavities form and the decay process sets in.

The decay process is not a slow, long continued one. Every time you eat sugar, or something with sugar in it, you get a short but very intensive attack of tooth decay. Unless, of course, your mouth has a good mechanism for neutralizing the acid that is formed.

Saliva is the natural neutralizer for acids in the mouth. The very act of chewing practically anything brings a more copious saliva supply into the mouth and thus a more efficient acid neutralizer.

But not everyone has such efficient acid-neutralizing saliva. Some who do may have teeth of such shape and arrangement that food lodges in places where not enough saliva can get at the acid being formed to neutralize it quickly enough.

Eliminating sugar from the diet, so there would be nothing for acid to come from in the mouth, would be one way to stop tooth decay, but very few would choose this way. Special alkaline ash diets to make the saliva a better quality would also prevent decay, but such diets are not very popular.

Best way to attack the problem, Dr. Fosdick thinks, is by a chemical to stop acid formation by checking the ferment that forms the acid. A dozen or more of such chemicals, technically called enzyme inhibitors, have been found and some of them tried.

The fluorine that acts as a tooth decay preventive in drinking water does this by checking the acid-forming ferment. But fluorine cannot be taken in more than minute amounts. It is a poison and even in relatively small amounts causes an ugly mottling of the teeth.

All the methods so far suggested for preventing tooth decay are so much trouble that, as Dr. Fosdick said, most people would rather have rampant decay than bother with them.

Putting the decay preventive into the sugar at the refineries, however, does away with the bother and gets the preventive to everyone, as almost everyone eats sugar in some form.

Whether glycerol aldehyde is the chemical to use requires further study. If it is not, the plan can still be put into effect when a better chemical is found. Amendment or revision of the Food and Drug laws would be necessary to permit the addition of the chemical to sugar. That could be done, just as it was to permit addition of vitamins to white flour for improving the health of all the people.

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CHEMISTRY

Red Stained Glass Made With Copper Vapor

➤ A SCIENTIFIC improvement of a chemical art practised since the Middle Ages is embodied in patent 2,428,600, awarded to a young woman chemist,

Helen S. Williams of State College, Pa., and assigned to Glass Science, Inc., of New York. It constitutes a better way to prepare red stained glass.

Red glass has traditionally been made either by adding a salt of copper to the melt, or by placing a copper compound on the surface of the hot glass, first under oxidizing, then under reducing conditions. Miss Williams introduces the copper as a vapor of copper chloride in the atmosphere over the still-hot glass, governing intensity of color in the product by adjusting time and temperature of exposure. It is even possible to make the deposit dense enough to constitute a copper mirror on the glass surface.

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MEDICINE

Spleen Checks Cancer

Growth arrested in three patients following 12 weeks of treatment with a spleen extract. It is not presented as a cure for cancer.

► THREE cancer patients at Hahnemann Medical College and Hospital, Philadelphia, are apparently getting better after 12 weeks of treatment with a spleen extract.

The extract was made by Dr. George W. Watson of Kitchener, Ontario. Studies of its effects on the three patients and on mice are reported by him and Drs. Irene Corey Diller of the Institute for Cancer Research and N. Volney Ludwick of Hahnemann Medical College and Hospital. (*Science*, Oct. 10).

The extract is described as an improved and "much more effective product" than one made and used by Dr. Watson 18 years ago.

The patients, one with a kidney cancer and the other two with cancer of the lungs, were given the extract twice daily by hypodermic injection.

"Definite improvement in the general health of all these patients" is reported. The progress of the cancers is reported checked as revealed by X-ray studies made at regular intervals.

When the extract was injected into mice with transplanted cancers, the cancer cells had almost completely degenerated within 48 hours, as shown under the microscope. The nuclei of the cells had disappeared completely leaving structurally intact only the cell bodies. Similar signs of cancer cell destruction were seen in chemically induced cancers in mice with five days of three-times-a-day injection of the spleen extract.

The extract does not act as a mitotic poison, checking cell division. In this it is unlike various chemicals which, because of their effect on cell division, have been proposed for cancer treatment.

The spleen extract is not presented as a cure for cancer, though Dr. Watson reports that two patients treated by him have survived 12 and 13 years.

The fact that the spleen is almost never the original site of cancer and is only rarely attacked by cancer spreading from other organs is what stimulated Dr. Watson's efforts to attack cancer with a spleen extract.

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NEW-TYPE HEARING AID—The tiny "printed" circuit held by the young woman replaces the 173 items in the foreground which constitute the present hearing aids.

body, Mass.

The printed electronic circuit which made possible the proximity fuze of World War II is utilized in this new aid to the deafened. This is said to be its first utilization in a commercial product.

Advantages claimed for the new hearing aid are its small, cigarette-package size; its dependability even if given rough treatment; the simplicity with which it can be serviced in the remote event that this is needed; and a superior power gain over the best of conventionally wired and assembled hearing devices.

The printed electronic circuit referred to is often called printed wire. It is a line printed with a silver ink on a special stencil or wafer. Fine silver or silver oxide is used. Carbon resistors are printed in when needed with a carbon solution to complete the circuit. In this new hearing aid, a statite wafer about the size of a calling card is used for the silver lines. The advantage of printed wire is space-saving, cost-saving and reliability.

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Insecticides containing the chemicals known as chlordane or benzene hexachloride are now being extensively used for grasshopper control, both as dusts and sprays.

MEDICINE

Stress May Cause Disease

► RHEUMATIC diseases as well as some kinds of high blood pressure and kidney disease may be due to an excessive glandular reaction to stress, Dr. Hans Selye of the University of Montreal reported at the New York Academy of Medicine.

The reaction is part of a defense mechanism of the body. The adrenal glands and the pituitary gland may be involved. First reaction to stress is what Dr. Selye calls the alarm reaction. If the stress is continued, the body acquires a great deal of resistance to it. But at the same time there is an increased production of a pituitary gland chemical which stimulates the adrenal glands. This may be what causes some kinds of high blood pressure and kidney damage.

Heart and joint damage similar to that seen in acute rheumatic fever accompany the resistant stage, due to excessive re-

action of the adrenals. Dr. Selye has found this the case in experimental animals and suggests it may occur in man.

The damaging effects of the adrenal gland hormone, produced excessively in resistance to continued stress, may be overcome in animals by diets poor in sodium or by large doses of ammonium chloride. In some cases of high blood pressure, this ammonium chloride treatment may be helpful, it appears from preliminary experiments.

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ELECTRONICS

New Type Hearing Aid Made With Printed Circuit

► DEVELOPMENT of a new type of hearing aid was announced by the Allen-Howe Electronics Corporation of Pea-

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NUTRITION

Malnutrition Prevalent

At least four areas in the U. S. revealed during a survey as having a major health problem in deficiency diseases, anemia, goiter and rickets.

► VITAMIN deficiency diseases, anemia, goiter and rickets, constitute a major health problem in at least four areas of the United States, declared two nutrition specialists at the American Public Health Association meeting.

Physical signs commonly associated with these deficiencies in the diet are prevalent in each of the areas studied—Southwest, Mid-Atlantic, New England and North Central—according to Drs. Harold R. Sandstead and Elton S. Osborne, Jr., of the U. S. Public Health Service.

Approximately 25,000 persons, including school children, occupational groups and families, were inspected by mobile field units under the sponsorship of the U. S. Public Health Service. This was necessary before corrective steps could be taken and preventive measures developed that would be of practical use to public health organizations.

In order to determine the nutritional status of each person, a record of what they ate, laboratory tests and a physical examination were made. The findings were turned over to the local health officer who in turn referred them to the individual's family physician if an unhealthy condition was found.

In the more than 1,800 white school children examined in Maryland and Michigan, the speakers declared, 47% of the children in the Michigan grade schools and 46% of the high school students had enlargement of glands in the lining of the eyelids and covering of the eyeball which is usually associated with vitamin A deficiency.

In two Maryland schools the prevalence of this condition was 28% and 23% while in all the others combined it was only 2%. Vitamin B complex deficiencies and vitamin C deficiencies were also noted in that some children suffered from several tongue conditions and inflamed gums.

The family studies, which involved some 3,862 persons, provided the most complete information regarding the nutritional status of a community, stated the physicians. Among the Negro families, vitamin A and C deficiencies were

very frequent, with almost as high a prevalence among the white families.

Due to the fact that certain physical conditions change with age, differences were noted between the school and family groups. The leading physical finding among the school children, enlargement of the glands in the lining of the eyelids, diminished in the older age group, while inflamed gums increased with age. Rickets were more prevalent among children, while the prevalence of enlarged goiter was in most instances among adults.

The nutrition section of the states relations division, U. S. Public Health Service, was organized in 1945 for the purpose of assisting the states in the development of nutrition programs. The physicians, therefore, make the following recommendations for a division of functions between the state and local health departments.

At the state health department level: establishment of a nucleus of a nutritional epidemiological unit to conduct surveys and promote interest in nutrition and establishment of laboratory facilities to serve the above unit and also to be available to hospitals and local health departments for specimen studies.

At the local health department level: employment of a public health nutritionist to work continually with and through the public health nurses to promote improved nutrition in the local population.

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MEDICINE

New Way to Immunity Studied by Doctors

► A NEW kind of shot in the arm to give resistance to germ diseases by stimulating various glands of the body may be on its way.

It was suggested as worthy of further study and clinical trial in a report by Dr. Abraham White of Yale University School of Medicine to the New York Academy of Medicine.

Very small doses of epinephrine, more familiarly known as adrenalin, might

be used. This chemical, standby for relief of asthma and sometimes a dramatic life-saver for patients in shock on the operating table, is produced by a part of the adrenal glands.

These twin glands, one above each kidney, play a significant role in the body's defenses, Dr. White explained. Among other things, they cause an increase in the scavenger cells of the body that are normally called on to help fight invading disease germs. They do this, not by the adrenalin they produce, but by another chemical called the cortical hormone.

This cortical hormone chemical might itself be used for the resistance-increasing shot in the arm, or increased production of it might be stimulated by the other adrenal hormone, adrenalin. A third possibility might be the use of a pituitary gland chemical which stimulates production of the cortical hormone.

The sex glands and the thyroid, big gland in the neck, also play a part in disease resistance. Female hormones, in doses normally produced by the sex glands in the body, increase the production of cortical hormone through pituitary gland stimulus. Larger doses of female hormones and doses of male hormones have the opposite effect.

Thyroid gland hormone is needed for disease resistance in a slightly different way. It is concerned with growth of the lymphoid tissue in which the scavenger cells develop.

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MEDICINE

Diseases of Old Age Less Prevalent in Tropics

► IF one would live long, he should spend his early years in a temperate climate to avoid the infections of the tropics, and the later years in the tropics to avoid the degenerative diseases of the temperate zone.

This is the advice given the National Safety Council by Dr. Carroll L. Birch, associate professor of medicine at the University of Illinois. He predicted that when once infectious diseases are conquered, tropical lands probably will become the site of the most advanced civilization the world has ever known.

He pointed out that the degenerative diseases so common in the temperate zones are practically non-existent in tropical areas. Infections are the main health hazards in hot countries, and these primarily affect the young.

Science News Letter, October 18, 1947

PUBLIC HEALTH

Lepers Not a Menace

Leprosy is less to be feared than TB in a community. Misconceptions by the public create a social and medical problem which has hindered attempts at improvement.

► DISCOVERY of a case of leprosy in a community is occasion for less fear than discovery of a case of tuberculosis, Col. G. H. Rarey, national vice president of the American Federation of the Physically Handicapped, declared at the meeting of the American Public Health Association in Atlantic City.

A leper who has been "cured", in the sense that treatment has arrested his disease as TB is arrested in so-called cured patients, can be employed without danger to his fellow workers.

Public health workers, Col. Rarey declared, should teach these facts to the American public in fairness to victims of leprosy, or Hansen's disease, and also as a means of combating leprosy.

The many misconceptions about the disease in the public mind have created not only a medical problem, since they have hindered attempts to improve the situation, but a social one as well, he said.

Because patients are made to feel that the term "leprosy" is associated in the public mind with the terms "outcast", "unclean" and other untrue and harmful attitudes, an unknown number of leprosy victims are concealing information concerning their disease.

Other facts about leprosy he said should be taught are:

A large number of leprosy cases are not communicable, or "catching", and the remaining cases are now classified as "freely communicable".

Leprosy is less communicable than tuberculosis and a number of other diseases. In over 50 years of treating and caring for leprosy patients at the National Leprosarium, not one doctor or nurse has contracted the disease, and no scientist in over 145 recorded cases has been able to infect himself or other human volunteers by attempted inoculation of the leprosy germ.

Leprosy is not a reportable or quarantinable disease in the state of New York. Although the patient is examined every six months, he may live and mingle with other people with no restrictions on his activities or employment except as a professional food

handler, or in caring for children or the sick.

Medical science has discovered new and more effective medicines for treating leprosy and the hospitalized patients are being discharged in increasing numbers, their disease arrested and of no further menace to anyone.

The uninformed public attitude is not the only barrier to the conquest of this problem. Col. Rarey pointed out that reports indicate that wrong diagnosis has seriously affected the chances for arrestment of the disease in many cases. Leprosy may often be mistaken for syphilis, since the Wassermann blood test may be positive, and for other diseases such as tuberculosis.

Col. Rarey urged a wider dissemination of the latest approved methods of diagnosing and treating leprosy to all physicians engaged in the general practice of medicine.

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ENGINEERING

Barnacles Removed by Heat Shock Treatment

► HOT and cold running water is being used to fight the menace of barnacles and other marine growths in 2,000-foot-long pipes which will bring in Pacific ocean water to the new Redondo Beach, Calif., steam electric generating station of the Southern California Edison Company.

Water being pumped out of the ocean to condensers in the new plant will be reversed in flow every eight hours to give the sea creatures a heat shock treatment. The rush of warmer water, plus regular injections of chlorine into the flow, is planned to avoid the difficult task of having to clean the huge water lines when they are completed.

The two pipes, constructed of steel-reinforced concrete and ten feet in diameter, are now being laid from the new plant to a structure more than 1,700 feet out in the ocean, where waves and tide will not interfere with pumping operations. Ocean water, at a temperature of approximately 65 degrees Fahrenheit,



NEW WATER PIPES LAID—They will extend more than 1,700 feet out into the Pacific ocean to bring sea water to the Southern California Edison Company's new Redondo Beach steam electric generating station. Barnacles will be removed by heat shock treatment.

heit, is pumped into one pipe to cool condensers and convert used steam into water which will flow back into the boilers of the steam electric generating station. After the water has done its cooling job it will flow back to the ocean through the other pipe at a temperature some fifteen degrees warmer.

When the new beach-side power station is put into operation early next year the flow of water in the two pipes will be reversed three times daily. The sudden rush of warmer water into the pipe which has been carrying cooler water in from the ocean is expected to kill barnacles, small clams, sea anemones, sea snails and other ocean life which might attach themselves to the insides of the heavy concrete pipe. The warm-water treatment will also be supplemented by chlorine injections into water flowing through the pipes to poison any fouling sea life in the pipes. Filtering water pumped from the ocean to catch bigger forms of sea life and other objects will be done ashore at the pumping station.

If the shock treatment and chemical attack keep the pipes clear, engineers hope they can avoid the difficult task of sending men into the pipes to clean them.

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Cancer is not limited to any geographical area or race of people.

POPULATION

Births in Starving Areas Are on the Increase

► THE hungry world has more mouths to feed than before the war. There are world-wide post-war shortages in food and housing, but no world shortage in babies, figures reported by the Metropolitan Life Insurance Company show.

Countries scheduled for U.S. aid under the Marshall Plan showed large increases in the birth rate. The biggest increase between 1945 and 1946 was in the Netherlands where the rate jumped one-third, from 22.7 per 1,000 population to 30.2 per 1,000. France and Italy also showed marked increases in their birth rates. Japan had an upturn since the end of the war and so did Germany, so far as the only available figures, those for the British Zone, show.

Russian birth figures are not available but hints of increases are seen in reports of official stimulus to larger families through financial incentives and special honors to mothers of large families and in the material postwar increases of the birth rates in countries within the Russian sphere of influence such as Bulgaria, Roumania and Finland.

Only four countries showed declines in the birth rate between 1945 and 1946. These are Mexico, Portugal, Chile and Sweden. Mexico had the largest decline, a little over 5%, but nevertheless led all other countries with the highest birth rate. Babies were born in Mexico in 1946 at the rate of 42.5 per 1,000 population, but at the rate of 44.9 in 1945.

The general postwar rise in the birth rate, however, is considered only temporary. The trend is expected to be downward before long, as it was generally after World War I.

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PEDIATRICS

Babies Grow Well On Own Feeding Schedules

► THE latest trend in feeding little babies is to let them set their own time schedule for eating and take as much or as little as they want at a feeding. It sounds like heresy to the previous generation of mothers who were taught to keep baby on a strict schedule and who worried, as mothers in any age seem to, over whether baby got enough food or too little. The answer to doubts is given by Drs. C. Anderson Aldrich and Edith S. Jewett, of the Mayo Clinic and the

Rochester, Minn., Child Health Project. (*Journal, American Medical Association*, Oct. 11.)

The babies do all right, judged by their height, weight, and appetite at about the time of their first birthday. Ninety-two out of 100 have excellent appetites. The average height for 668 babies on a self-regulating feeding program almost from birth was 29.4 inches at the age of one year. The average weight was 21.8 pounds. These figures, the doctors say, compare favorably with the generally accepted standards.

The babies were put on their own, as it were, as soon as they and their mothers went home from the hospital. Mothers were told they could feed the babies all they wanted to eat when they seemed hungry. They did not have to wake them by the clock to feed them at a prescribed time. Within a few days or weeks, the babies arranged a schedule for themselves. At first, most of them woke up and cried for food every three hours. Of 100 babies, 61 put themselves on the three-hour schedule by the end of the first month, 10 chose a two-hour schedule and 26 chose the "more approved" four-hour schedule. One was on four meals a day and two were still too irregular to be graded.

As they got older the babies switched by themselves to longer intervals between feedings. By the ninth month all but 10 were on either three or four meals a day. The study shows, the doctors point out, that a rigidly prescribed routine of feeding could fit the needs of the average baby but not those of the precocious or of the slow to change.

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AGRICULTURE

2,4-D Not Recommended For Killing Potato Vines

► CHEMICAL killing of potato vines before harvesting, though recognized as good farm practice, should not be carried out with 2,4-D, the U. S. Department of Agriculture warns. Trouble is that 2,4-D does not stop with killing the vines; it penetrates to all parts of the plant, including the tubers, and sometimes injures them severely.

There are a number of herbicides that act only on the overground parts of plants, including cyanamid and several dinitro compounds. These are recommended as satisfactory vine killers that will not affect the potatoes themselves.

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IN SCIENCE

EDUCATION

Train to Tour in Britain Exhibiting Atomic Energy

► BRITAIN will have an atomic energy exhibition train which will tour the nation from November to April, much the way the American Freedom Train is barnstorming America.

The British Atomic Scientists Association is planning this public education activity in connection with local atomic energy weeks during which the social causes of war will be studied.

Science News Letter, October 18, 1947

INDUSTRIAL MEDICINE

Cancer Increase Foreseen In War Industry Workers

► FORMER employees of war plants will have an increasing number of cancers in coming years as a result of exposure to cancer-producing agents, predicted Dr. W. C. Hueper of the Warner Institute for Therapeutic Research in New York.

Under the pressure of war, plants were built and manned by persons not adequately familiar with occupational cancer-producing hazards derived from the use or production of these dangerous agents, Dr. Hueper pointed out.

However, he said that it would require 10 to 20 years to reveal the occurrence of cancer in the former employees of these plants.

Pointing to the types and numbers of persons who may be exposed by their occupation to cancer-producing agents, Dr. Hueper listed workers employed in industries producing, using and handling raw materials and semi-finished goods; employees of workshops, trades and professions, using the products of these industries; workers of transport and merchandising trades, handling these industrial products with the cancer-producing qualities during the process of packing, loading, shipping and selling, as well as the general public which buys and consumes such goods.

Dr. Hueper's prediction was made at the International Cancer Research Congress meeting in St. Louis.

Science News Letter, October 18, 1947

NEW FIELDS

METEOROLOGY

Earth's Weather Made by Ten-Mile-High Air-River

► WEATHER down here on the ground consists largely of great whirling eddies cast off from a vast air-river ten miles up, that flows from west to east around the earth, with speeds up to 200 miles an hour. These whirlpools of air, hundreds of miles in diameter, drift downward, and storms result when they reach the planet's surface.

This Titan's-eye view of the making of weather, which goes far toward accounting for the cold and warm air masses shown on the daily weather maps, was evolved by Prof. Carl G. Rossby, University of Chicago meteorologist, after a study of radiosonde data sent back by featherweight robot weather instruments borne to great heights on thousands of free-floating balloons.

Another technique for studying weather at great heights involves the use of long-range rockets like the German V-2's now making research flights at White Sands, N. Mex. Dr. Michael Ference of the University's meteorology faculty states that plans include loading such rockets with large quantities of chemical smoke, to be released at superstratosphere levels. Bending or breaking of the smoke trails will tell directions and relative velocities of these winds far above the world.

Science News Letter, October 18, 1947

PSYCHOLOGY

Auditory Afterimage After Loud Buzzing

► DISCOVERY of an "auditory afterimage," never found before, is reported from Harvard's Psycho-Acoustic Laboratory at Cambridge, Mass.

After a buzzing sound of high intensity is listened to, familiar sounds of the human voice, a typewriter or a handclap take on a strange metallic quality that is "jangly" or "twangy." In the world of sound, Harvard scientists suggest, this is an "afterimage" just as the eye sees a replica of a photographer's flash a few seconds afterwards.

Almost everyone who has been photographed by a news photographer has

noticed a bright or dark replica of the flash dancing before his eyes. Or a phantom replica of the sun can be seen after looking at the real sun. These optical or visual afterimages are familiar phenomena.

The discovery of the auditory afterimage is reported, with a question mark, by Drs. W. A. Rosenblith, G. A. Miller, J. P. Egan, I. J. Hirsh and G. J. Thomas. (*Science*, Oct. 10.)

Scientists have long been puzzled by the fact that no one has noticed any afterimage of hearing. A deafening sound like that of an airplane motor or boiler factory will produce a "ringing in the ears." But this is something that may persist for hours and is more like "spots before the eyes" than like the afterimage.

The auditory afterimage seems to be the same no matter what kind of sound it is accompanying. It is what the scientists describe as a "metallic, ringing obligato." It lasts a number of seconds, the duration depending on the duration and the intensity of the loud buzzing sound that caused it.

If silence follows the buzzing, there is no "auditory afterimage." To get the effect, there must be a sound to be affected.

Science News Letter, October 18, 1947

ARCHAEOLOGY

First Mayan Ruins Explorer Honored by Plaque

► THE first modern explorer to discover the monuments left by the Great Mayan civilization now has a monument of his own. John Lloyd Stephens in 1841 described his important finds with scientific exactness in a book which is still a classic in the field. The memorial plaque in the New York Marble Cemetery in his honor was dedicated on Oct. 9.

Stephens' extensive travels through Central America took place previous to 1841, and it was his description of the great wealth of archaeological treasure that he uncovered there and his evaluation of the importance of the Maya civilization, that roused the interest of scientists in studying Middle America sites.

John Lloyd Stephens was born in Shrewsbury, N. J., in 1805 and was a lawyer by profession. He was one of the first of America's diplomatic travelers to combine his political mission with the work of a cultural envoy.

Science News Letter, October 18, 1947

PUBLIC HEALTH

Tick Fever Virus Found In Long Island Dog Ticks

► THE possibility that Colorado tick fever may attack residents of Long Island, N. Y., and other regions far from Colorado appeared in a report by Dr. Lloyd Florio and Miss Mabel O. Stewart of the Colorado Health Department at the meeting of the American Public Health Association.

They found the virus of Colorado tick fever or a very closely related virus in dog ticks from Long Island although the disease has never been diagnosed in this area.

The Western strain of the virus is believed to be transmitted by the wood tick although it has never been isolated from ticks in nature. However, when the infected ticks are ground and injected into hamsters, rodent-like animals used for laboratory experiments, they show infection with Colorado tick fever. These results parallel those obtained with Rocky Mountain spotted fever.

Science News Letter, October 18, 1947

GEOLOGY

New Major Oil Field Found Near Caspian Sea

► A NEW oil field has been discovered in Soviet Azerbaijan near the Caspian sea, it was reported in Washington by the Embassy of the Union of Soviet Socialist Republics. It is said to be a major oil field, and two young Soviet geologists responsible for the discovery have been awarded Stalin Prizes for their work.

Azerbaijan is one of the constituent parts of the Soviet Union. It is an area with a population of approximately 3,500,000, and about the size of Maine. It is in the southeast corner of the U. S. S. R. and borders a northern province of Iran also called Azerbaijan. The new oil field is relatively nearer the older Baku fields, which are on a peninsula that projects into the Caspian.

This Baku area is some 400 miles northeast of the great oil fields of Iraq, in which British and Americans have primary interests. It is also within a few hundred miles of oil production in the Caucasus region between the Black and Caspian seas, one of Hitler's objectives in the Nazi drive into southeastern Russia during the recent war.

Science News Letter, October 18, 1947

POPULATION

More Mouths Than Food

To prevent war the world needs fewer babies. Experts believe that a population race at this time would be as disastrous as an atomic armament race.

By MARJORIE VAN DE WATER

► TO PREVENT war, the world needs fewer babies. Cutting down birth rate is a better way to insure peace than reduction of armaments.

Some parts of the world are growing enormously. Other parts are hardly holding their own. There is just not enough food in the world to feed everybody. Result: fear and want and international problems.

Experts believe that a population race at this time would be as disastrous as an atomic armament race. Yet population problems remain unsolved.

Compare these figures: The U.S.S.R. in 1940 had 170,000,000. The U. S. had 132,000,000. China had 400,000,000. England and Wales had only 42,000,000.

Each year brings a new crop of babies. But the stork does not bring the baby crop to the countries having the biggest food crops. On the contrary.

U. S. Well Fed

The United States with relatively few babies to add hungry mouths to the population is one of the few countries where people get enough to eat. Nutrition experts set the figure of 3000 calories as the amount a moderately active man should eat each day. Uncle Sam's nephews are among the few of the world's people who actually get more than that. And our diet is pretty well balanced. Only 27 per cent is in cereals—the food that people fill up on when they can't get enough meat and green foods.

More than half the world's people are hungry. An even 50 per cent can't have as much as 2250 calories for each person each day, United Nations experts say.

Russia's 170,000,000 eat less than the necessary 3000 calories daily. They get only 2827 calories of which 65 per cent is cereal. That means not enough of meat and milk and sugar.

Other parts of the world are even worse off. China's 400,000,000 get only 2201 calories a day and 70 per cent of this diet is in cereal—rice. India eats 2021 calories apiece and 64.6 per cent is

cereal. In all South America only three countries—Argentina, Paraguay and Uruguay—eat well. Four other big South American countries for which figures are available average only 2264 calories of which 37 per cent is in cereal.

More mouths to feed will mean more hunger, unless food supplies can be increased far beyond expectation. And the pressure of hunger often drives a nation to look for expansion, new territory, more sources of food supply. Here are the seeds of war.

Thus in the U.S.S.R. the births each year far outnumber the deaths, 37 per thousand to 19. Even allowing for the war-caused death and lack of births, it is expected that the U.S.S.R. will have 48,000,000 more persons in 1970 than she had in 1940 or a total of 218 millions. That is an increase in population much greater than the total population of England and Wales in 1940. It means a gain of nearly 28 per cent over Russia's population in 1940.

The United States is growing, too. But our gain is smaller not only in actual numbers but in percentage of our 1940 population. Our birth rate is 17 per thousand compared with Russia's 37. Our death rate is, however, lower than hers—11 per thousand. The gain in population between 1940 and 1970 will be 28,000,000. That is about 20 per cent of the number we had in 1940.

Our Peak in 1990

But if we follow our present trends of births and deaths, we will reach our peak of population in 1990—in 43 years. After that our population is expected to drop off.

For Russia, there is no peak in sight. She is expected to go right on growing.

China, even when she is without war, is a land of catastrophes. It is estimated that China has an average of about 49 droughts and 48 floods every 100 years. That means an average of one major catastrophe every year. In addition, epidemics come along every five years.

China's birth rate tops Russia's. It is estimated at between 38 and 50 per

thousand, Dr. A. J. Jaffe reports in *Human Biology*. But in relatively normal and peaceful times, China has a death rate of between 30 and 40 per thousand. If this rate does not go up or down in the future, she would grow just about 10 per cent each generation. And 10 per cent of 400,000,000 is 40,000,000, practically the population of England and Wales.

South America may expect an increase of 48.6 per cent by 1960, UN food experts calculate.

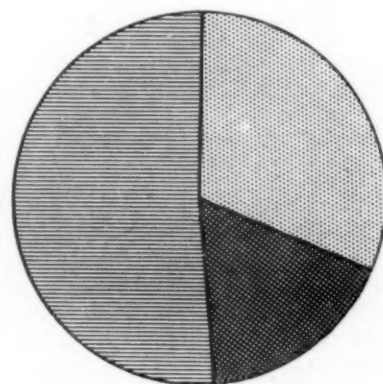
Let's look forward a few years to 1960. How many more will pull up chairs hopefully to the world's dinner table? The following figures are only a part of the story, but they will give you an idea:

In the world as a whole, each table now set for four people must pull up one extra chair in 1960. But neither the food on the table nor the increase in mouths to feed is equally distributed.

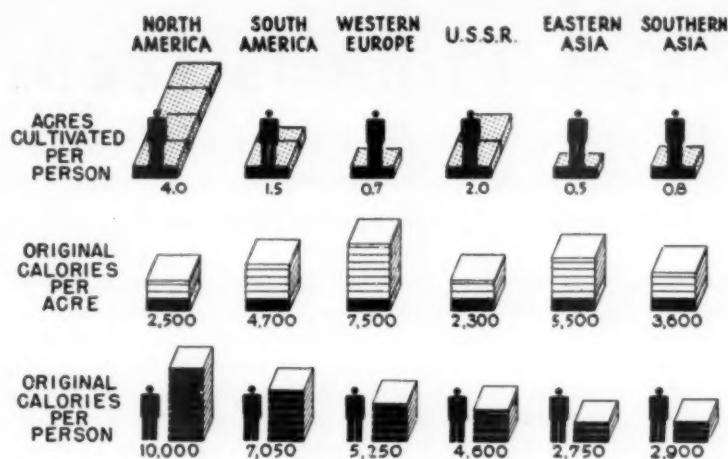
In the U.S.S.R. each table for four must set at least one extra place. But in the U. S., where we now enjoy more than the 3000 calories we need, we will add only one extra place for every seven now eating.

Here are the figures showing the number of people to be fed today and in 1960.

U. S. today	132,000,000
must add	21,000,000
U.S.S.R.	170,000,000
must add	29,000,000



WORLD CALORIE DIAGRAM—
The striped section represents the portion of the world that gets below 2250 calories; the light dotted part shows those getting between 2250 and 2750 calories, and the dark part represents the well-fed population.



FOOD PRODUCTION—Calculated per person, North America leads with a production of 10,000 calories for each individual. Russia produces 4,600 for each of her 170,000,000 people—a narrow margin when one considers her rate of growth.

India	382,000,000
must add	45,000,000
China	400,000,000
must add	60,000,000

Where is the food produced? Here again the United States leads with a production of 10,000 calories for each of our 132,000,000 people. This is naturally much more than the 3000 that we need to eat. We export a great deal.

Russia produces 4600—a narrower margin especially when you consider her rate of growth. She needs to eat more, especially meat. Asia produces from 2750 to 2900 calories per person. That is low. South America is between the U. S. and the U.S.S.R. with 7050 calories per person, but this includes their meat production. Meat is not produced on cultivated land, but on the range.

Four Acres Per Head

In the U. S., there are four acres of land under cultivation for every person. Compare that with the two acres per person cultivated in the U.S.S.R., one and a half acres in South America and less than one acre in western Europe, and Asia.

Obviously, the need is to cultivate more land, and to cultivate it more intensely so that more food is produced. Some can be imported by starving countries. But, food is perishable. Transportation is difficult. It is far better, when possible, to produce it where it is eaten.

There is possibility of improvement. The output of food per person is 10 times as great in the more advanced countries as it is in the poorer countries,

estimates the UN Food and Agricultural Organization. Chief needs are for education, for farm machinery, for fertilizer, for control of erosion, and for control of plant and animal pests.

But there are also severe limits to the amount of land that can be brought into profitable production due to climatic conditions and erosion. For example, in the U.S.S.R., the frozen soil of the Arctic and the arid desert regions of the steppes both put obstacles in the way of increasing the amount of farmed land in a large part of the country.

The U.S.S.R. is believed by population experts to need a large population to develop her enormous resources. This is indicated in a recent League of Nations report by Dr. Frank Lorimer of American University. But whether she can grow food fast enough to fill all the hungry mouths coming into the world is a question.

Migration is a natural solution to the problem of many people and scarce food. If they are let alone to do what they

want to do, people usually will travel from lands of hunger and want to places of greater opportunity. But the natural flow of people is now cut off by all sorts of legal barriers.

Close Immigration Doors

Countries which once were lands of opportunity have now closed their doors. Other countries, whose peoples might want to migrate, are keeping them jealously at home for fear of cutting down on the supply of young men of military age. The situation is surveyed by Dr. Dudley Kirk of Princeton for the Milbank Fund.

The greatest present potential source of migration is the U.S.S.R. with its millions of people and ever-increasing number of babies. But, Dr. Kirk tells us, almost since its founding the Soviet Union has forbidden free emigration from the U.S.S.R. Now, several other Eastern European countries are following her example.

That leaves two other great sources of potential migration—Italy and Germany. The 13,000,000 displaced Germans Dr. Kirk considers the greatest potential source of migration. Just what will be the attitude of other nations toward receiving these homeless people remains to be seen.

Could we take people in? Certainly we could afford to admit all that our present laws permit. This would amount to only 153,000 a year. Dr. Warren S. Thompson, director of the Scripps Foundation for Research in Population Problems, estimates that this would not add more than 4,500,000 to our 1970 dinner table.

Science News Letter, October 18, 1947

Birds seem to have either no sense of taste or else a very strange one; they swallow without hesitation berries and small fruit that are bitter, nauseous, insipid or tasteless to humans.

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DENTISTRY

Rhubarb Protects Teeth

This fruit may become a year-around food since it has been demonstrated that when mixed with lemon juice it will protect teeth against erosion with acids.

► RHUBARB may become a year-around food as a result of a discovery in the Animal Nutrition Laboratory at Cornell University, Ithaca, N. Y. Rhubarb protects teeth against erosion by acids, Prof. C. M. McCay of Cornell has found.

Dentists in recent months have reported that some patients have part of their front teeth dissolved off from daily drinking of large amounts of lemon juice in the treatment of constipation and arthritis.

Basic studies at Ithaca indicate that about one cup of rhubarb juice mixed with four of lemon juice will prevent this erosion of teeth.

The discovery has a history, starting when Prof. McCay was assigned in the autumn of 1943 to temporary duty with a construction battalion unit of the Navy. Purpose was to learn how to improve the cookery of dehydrated foods when the kitchen and mess hall were two Quonset huts on a sandy island.

While not thus employed, a study was made of foods bought by men outside the mess hall. These consisted mostly of candy and soft drinks. Most popular of the soft drinks were the cola beverages which contain substantial amounts of phosphoric acid. The question arose, "would this acid erode teeth?"

When Prof. McCay returned to the medical research center of the Navy at Bethesda, Md., he obtained the help of a Navy research dentist. Human teeth were immersed in cola beverage. They softened in two days.

This observation led to the feeding of the same soft drinks to experimental animals. In every case in about two to eight weeks the surface of the molar teeth of these animals was partly dissolved away by the beverage.

Studies with many other common acid beverages were then undertaken. Both lemon juice and synthetic lemonade were found to etch teeth as badly as the cola beverages.

Then came the long search to discover some natural foodstuffs that would protect teeth against this action of acids. Small amounts of fluorides were tried but they gave only partial protection.

After nearly two years the group of research dentists and nutritionists discovered, purely by accident, that a small amount of oxalate in an acid beverage would completely protect the enamel of teeth. Involved in the discovery was the feeding of acid beverages to several hundred rats, mice, dogs, and hamsters.

After this, advancements were rapid. Nutritionists had long known that many foods contained substantial amounts of oxalate. Rhubarb and spinach are two of the richest.

Prof. McCay returned to Cornell in 1946 and continued the researches. Trials are now in progress to learn how much rhubarb juice must be drunk or how much sauce eaten to provide the best protection for teeth. Rhubarb has long been recognized as a good laxative and a tasty food. Hence it will not detract if mixed with lemon juice to prevent constipation, says Prof. McCay.

At present no one can anticipate how much these discoveries will expand the market for rhubarb and its juice, but a new industry may arise—the bottling of rhubarb juice and the canning of rhubarb sauce.

Science News Letter, October 18, 1947

In early colonial days the *topsoil* in America was about nine inches deep; today it is about six inches on an average for the nation as a whole, but in some areas it has been entirely lost.

YOUR

HAIR

AND ITS CARE

By O.L. Levin, M.D. and H.T. Behrman, M.D.

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PSYCHOLOGY

Obesity Hides Insecurity

Fat young girls don't reduce because their overweight is a protection against men and sex and the responsibilities of grown-up womanhood.

➤ MANY fat young girls stay fat because it is a protection against men and sex and the responsibilities of grown-up womanhood which they dread even more than the disgrace of being fat, Dr. Hilde Bruch of Columbia University College of Physicians and Surgeons told a medical audience at the New York Academy of Medicine.

The reason why fat people loudly bemoan their size without ever doing anything about it is that the fat person started out as a timid person who came to depend on his bulkiness for a feeling of strength, safety and power.

Fatness, or obesity as it is termed in medical circles, comes from eating more calories than are spent in energy and activity. The treatment of obesity therefore seems simple: Reduce the food intake and increase the exercise. But, Dr. Bruch pointed out, the fat patient just will not stick to "the perfect well-balanced reducing diets which we prescribe, nor does he follow our advice for more active participation in social life that should make for greater happiness and better adjustment."

"The basis of rational treatment of obesity," she said, "is an understanding and respectful attitude towards genuine problems. The obese patient needs the sympathetic support of a physician who will help him to gain insight gradually into the nature of his real problems. This can best be accomplished by regular and continuous contact. Prescription of a diet alone is rarely sufficient."

The essence of the problem of fatness, she said, is expressed in the saying of a modern writer, "Imprisoned in every fat man, a thin one is wildly signalling to be let out."

The doctor trying to help a fat patient reduce needs to understand that the reason fat people avoid muscular activity and social contacts is that these are associated with the idea of danger, threat and insecurity. This explains, too, why fat people can go on eating without any exercise to give them an appetite or use up the calories. It is because food stands for love, security and satisfaction.

Sometimes the very unattractiveness of obesity serves a definite emotional

purpose. It offers a seemingly obvious reason for avoiding situations which might provoke fear and anxiety.

Looking for the psychological causes of obesity, Dr. Bruch found the family setting important. Typically the family of a fat child is a small family, with the father playing a subordinate role. The mother may be trying to realize in her child her own dreams of a life of luxury and idleness of which she feels herself deprived. Her way of showing affection is to over-feed the child and spare him the necessity of doing things for himself. Her attitude toward her fat child is like that toward an inanimate and prized possession, such as a fine piece of furniture or clothing, to which she gives the best of care in order to retain it. Mixed with this is a feeling of hostility toward the child and irritation

over the demands her excessive care of him make on her. So she nags and criticizes him for his awkward appearance and scolds him for being greedy at the same time that she constantly uses food as a bribe to keep him close and dependent.

Science News Letter, October 18, 1947

MEDICINE

VA Opening Heart Center For Research and Training

➤ THE Veterans Administration is developing a heart disease center at Mount Alto Hospital in Washington. Treatment and research will be conducted with all the modern medical tools under the supervision of Dr. George P. Robb, widely known heart specialist. The hospital will also serve as a training center for VA doctors wanting to specialize in treatment of heart disease.

Heart disease is the most frequent cause of death among veterans as it is among the population generally. It also is one of the most frequent causes of sickness requiring lengthy hospital stays among veterans.

Science News Letter, October 18, 1947

SELECTED WRITINGS OF BENJAMIN RUSH

DAGOBERT D. RUNES, *Editor*



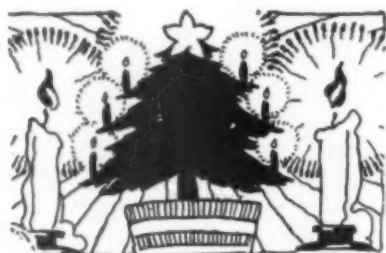
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► **RIGHT NOW**, in mid-October, is really the best time to go shopping for your Christmas tree. Not that you will find the street-corner stands stocked with little firs and pines at this time of year. Christmas trees of that kind will come along, as usual, during the last rushed week or two before Christmas Eve, and will undoubtedly be in bad condition and overpriced—also as usual. And once set up, they will dry and die before the Yule season is ended; they will litter the floor with shed needles, and will be fire hazards and nuisances generally.

This unsatisfactory performance is all you can expect from the conventional Christmas tree. It is really only half a tree anyway; its roots, necessary for maintenance of anything like normal condition, have been amputated and left in the ground. It is a dying tree, and such treatments as setting its base in a can of water or spraying its foliage with preservative formulae only postpone its end a little while.

If you want a normal living Christmas tree, now is the time to get it. Nursery stock is still being dug and shipped for fall planting, except in the northernmost areas of this country. It should not be difficult to find a suitable small evergreen and have it planted in a tub, where it will have a chance to recover from transplantation shock and be in good condition by the time the holiday season arrives.

Your tree need not be moved into the house immediately. It can be left outdoors, on the porch or in the yard, with no more attention than an occasional moderate watering. It will not need much water, even, for growth is

now at a standstill and replacement of the relatively small amounts transpired through the foliage is all that is called for.

After it has been moved into the living-room for its brief season of glory, with lights for flowers and lollipops and toys for fruits, your tubbed tree will not need to be flung out, to lie like a reproachful corpse until it is carted away by the trash collector or chopped up to

burn in the fireplace. It can be put outdoors again—perhaps into a previously prepared pit among the shrubbery—and left to live through the winter and awaken and grow again in spring, as a normal young tree should. It can survive to do its Christmas duty year after year, becoming as much a part of the family as the dog or cat.

Science News Letter, October 18, 1947

PSYCHOLOGY

Mamas Like Their Babies

Two-thirds of quizzed mothers have no complaint to make against their babies' behavior. Possibly they have acquired a realistic attitude toward infant habits.

► **"WHAT** habits does your baby have of which you do not approve?"

More than 600 mothers of babies about one year old were asked that question at the Rochester, Minn., Child Health Project.

Over two-thirds of the mothers, 424 out of 623, surprised the doctors by reporting their babies had no unapproved habits, Dr. C. Anderson Aldrich, Mayo Clinic pediatrician and director of the Child Health Project, reported to the American Public Health Association meeting in Atlantic City.

Maybe, Dr. Aldrich said, the doctors at the project had been more vividly impressed by active complaints mothers made about misbehavior than by lack of them, and thus had an exaggerated idea of the number of such complaints.

Second possible explanation of the large number of non-complaining mothers is that the mothers, who had been bringing their babies regularly to the project since their birth, had learned a realistic and tolerant attitude toward infant behavior.

Third possible explanation is that because of the doctors' efforts at the project to adjust routine care to the steps of normal growth and development, the babies actually were better behaved than is usual.

The extremely high ideals which some mothers seem to hold for their children were seen in the replies of those who reported unapproved habits.

"Such behavior as hair-twisting, or wanting a bottle at bedtime would hardly be called 'unapproved behavior' by most people of experience with babies," Dr. Aldrich commented.

The overwhelming majority of complaints were for what the doctors called repetitive habits. Most of these, 137 out of the 216 total number of complaints, were for thumb-sucking. This behavior may be even more frequent, because many mothers did not list it. They considered it normal behavior at this age, "an attitude with which we are inclined to agree," Dr. Aldrich reported.

Thumb-sucking, he and his associates think, is merely the sign of a lingering sucking instinct which has not yet disappeared and is unsatisfied at the time when the baby is weaned and given milk from a cup. This is particularly true, he said, when, as in the vast majority of cases, thumb-sucking appears only when the child is hungry or sleepy. When the habit persists for a large part of the waking day, it is probably more significant as a sign that the child is unable to proceed into more grown-up forms of activity.

Only 52 of the 664 babies were complained of because of refusing to eat or needing coaxing. In 39, the mothers complained of a voracious appetite as unapproved behavior. Sleeping habits caused complaints in about 118 of 661.

Noteworthy, Dr. Aldrich commented, was the fact that no mother listed unapproved behavior related to eliminative functions.

Only 11 complaints were made of crying, which when compared with the almost universal crying of newborn babies points up the often forgotten fact that this unwelcome behavior is a disappearing function typical of the infant three months old or less and becoming rare by the end of the first year.

Science News Letter, October 18, 1947

Books of the Week

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BASIC BIOLOGY—Carroll Lane Fenton and Paul E. Kambly—Macmillan, 726 p., illus., \$3.24. For high school students, this well-illustrated text presents fundamental facts, problems, and principles in all fields of life science.

BULBS FOR BEAUTY—Charles H. Mueller—Barrows, 296 p., illus., \$3.50. A practical manual for gardening with bulbous plants, including a description of their botany as well as a seasonal planting sequence with month-by-month reminders for bulb-garden tending.

CHICAGO NATURAL HISTORY MUSEUM ANNUAL REPORT, 1946—139 p., illus., paper, \$1.00. The yearly report covering all phases of the Museum's operations.

COLLEGE PHYSICS—Arthur L. Foley, rev. by J. L. Glathart—Blakiston, 4th ed., 703 p., illus., \$4.25. The revised edition of this popular text for first year college students emphasizes physics as a 'useful subject' and integrates many new developments, including nuclear physics.

DEEP ANALYSIS—Charles Berg—Norton, 254 p., \$3.50. In language intended for the non-professional reader a British physician describes in detail a single case of deep Freudian analysis, with a chapter explaining his technique.

ELEMENTARY NUCLEAR THEORY—H. A. Bethe—Wiley, 147 p., \$2.50. A clear, mathematical treatment of the fundamental theory of nuclear forces intended primarily for those familiar with the technical vocabulary of nuclear science.

THE GENUS "CREPIS"—Ernest B. Babcock—Univ. of Calif., illus. Pt. I—\$3.50 paper, \$4.00 cloth; Pt. II—\$10 paper, \$12 cloth; both parts—\$13.50 paper, \$15 cloth. A composite genus, interesting for its widespread distribution and great variability. Part I treats of genetics, geobotany, etc.; Part II comprises the taxonomy.

HOW TO BREED DOGS—Leon F. Whitney—Orange Judd, rev. ed., 418 p., illus., \$4.50. Basic scientific principles of reproduction and heredity in dogs, explained understandably, with particular reference to their application in practice.

AN INTRODUCTION TO MODERN ARCHITECTURE—Elizabeth Mock and J. M. Richards—Pelican—128 p., paper, 35 cents. Tells what modern architecture is and is not, and provides other valuable information for prospective home owners, builders, engineers, city planners, and others interested in this important subject.

THE NEW INTERNATIONAL YEAR BOOK—Charles Earle Funk, ed.—Funk & Wagnall's, 752 p., \$10.00. A compendium of the world's progress for 1946, an important period of transition in history from war to peace in the atomic age.

PARTICIPATION OF THE UNITED STATES GOVERNMENT IN INTERNATIONAL CONFERENCES—July 1, 1945-June 30, 1946—Department of State Publ. 2817, Conf. Series 95—Govt. Printing Office, 292 p., paper, 75 cents. Contains brief accounts of all international conferences in which

the U. S. Government participated during this period.

PHARMACEUTICAL LABORATORY MANUAL—R. A. Kuever—Lippincott, 290 p., \$2.75. Designed to stimulate the student's interests in pharmaceutical operations, and to supply a thorough course of experiments, progressing from the simpler to the more complex.

THE STANDARD BOOK OF SEWING—Drucella Lowrie—Halcyon House, 237 p., illus., \$2.00. A complete handbook on the art of sewing, describing basic procedures and many special problems; illustrated with informative diagrams.

TEXTBOOK OF THE NERVOUS SYSTEM: A Foundation for Clinical Neurology—H. Chandler Elliott—Lippincott, 384 p., illus., \$8.00. A new approach to learning the structure and function of the human nervous system, presenting clearly the details of both neuroanatomy and neurophysiology.

Science News Letter, October 18, 1947

MEDICINE

Restrictions Overdone in Rheumatic Heart Children

➤ MANY a schoolchild with rheumatic heart disease or who has a heart murmur has his activities restricted needlessly, Dr. George M. Wheatley, assistant vice president of the Metropolitan Life Insurance Company, told members of the American Public Health Association meeting in Atlantic City.

More emphasis should be placed on referral by teachers and nurses of pupils believed to be below par for medical review, he stated in advice to school health authorities.

School absences due to illness or vague disorders may, if investigated, lead to detection of early cases of acute rheumatic fever.

"Relatively few rheumatic children attending regular school in the intervals between attacks need to have their physical activity restricted," Dr. Wheatley declared.

"In a group of 1000 rheumatic children seen 10 years after they first came under observation, 783 were alive and of these more than 80% were able to lead normal active lives except in competitive sports. More than half were able to engage in competitive sports."

School medical examinations should be improved to aid in more accurate recognition and supervision of rheu-

matic children, Dr. Wheatley advised. He also urged special diagnostic and consultation services to aid school physicians and other doctors who may advise parents concerning the care of children with potential or definite rheumatic heart disease.

Science News Letter, October 18, 1947

SAFETY

Road Habits Recorded By Automatic Camera

➤ "CONSCIENCE," some wag defined, "is that faculty that warns you someone is looking."

A pretty fair mechanical equivalent for a conscience, to watch over the ways of truck and bus drivers, has been invented by George B. Finnegan, Jr., of Mountain Lakes, N. J., and Hobart N. Durham of Munsey Park, N. Y., who have just received U. S. patent 2,428,273 on their device.

It consists of an electrically operated camera in a weather-tight housing, to be mounted on top of the vehicle. During ordinary, straight-away driving, it snaps a picture of the road ahead on eight-millimeter film about every 500 feet. Where more careful driving is demanded, as on sharp turns and when slowing down to a stop, the rate is automatically changed to one exposure every 50 feet. The magazine is large enough to hold film sufficient to record very long drives.

The pictures, when developed, will give a fairly continuous record of the driver's road habits, and particularly will show whether he uses his head in accidents and other emergencies. They will, of course, be a great help to a competent and careful driver if he is improperly accused of responsibility for an accident.

Science News Letter, October 18, 1947

Babies born in the United States today have a life expectancy of 66 years.

THE SCIENTIST IN ACTION

by W. H. GEORGE

A SCIENTIFIC STUDY OF HIS METHODS

This book is for those who need to do ORIGINAL thinking. CLEAR thinking. THINKING WITH A PURPOSE. Helps you to DISCOVER ideas, tells you how to DEVELOP them! Explains clearly METHODS OF WORKING to get RESULTS.

H. G. WELLS Writes To The Author "... I took up your book about a quarter to eight. At nine my parlour maid came to ask if I wanted any dinner tonight. It is now close on to midnight. But I realize now that your book is of the UTMOST IMPORTANCE and I feel tremendously lit up by it..."

Most respectfully yours, H. G. Wells

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☛ **MOSQUITO EXTERMINATOR**, called a black leaf mosquito-fumer, expels under pressure a killing stream of smoke containing DDT and nicotine into shrubbery and grass when the contents of the container are ignited. Ignition is by a special lighter inserted through a small opening in the top of the container.

Science News Letter, October 18, 1947

☛ **ANTI-WOBLER** device for furniture is a button-size attachment placed under each leg of a chair or table that keeps all legs in contact even on rough floors. The hollow button contains a silicone called "bouncing putty" which automatically, through a connecting piston, adjusts the leg-length.

Science News Letter, October 18, 1947

☛ **ICE CREEPER**, just patented, is a flexible band that fits around the instep of a shoe. The part under the sole has metal strips on its lower side adapted to grip the ice, and an upper surface adapted to be indented into the sole of the shoe.

Science News Letter, October 18, 1947

☛ **WHISKBROOMS** with plastic fiber bristles instead of the familiar straw are effective in removing dust, lint and hair from clothes, and can be washed in soap and warm water without injury. Their handles are also made of plastic and both handles and bristles are in various colors.

Science News Letter, October 18, 1947



☛ **DUST FILTER**, shown in the picture, has an aluminum facepiece, a rubber exhalation valve, and a transparent plastic housing to hold the removable filtering material. Air is inhaled through four openings in the lid, and the condition of the filter can be noted through the plastic covering.

Science News Letter, October 18, 1947

☛ **THREAD MAGAZINE** for the seamstress is a frame with axles to hold spools of thread whose loose ends are passed through a fabric covering. Beside each hole for the thread projecting through the fabric is a color patch to indicate the color of the thread.

Science News Letter, October 18, 1947

☛ **COOKIE CUTTERS**, made of a durable and easily cleaned plastic, form figures from Grimm's fairy tales of Hansel and Gretel. The story itself, plus easy recipes, is printed inside the box cover. The cutters impress the design-character lines on the cookies.

Science News Letter, October 18, 1947

☛ **TRIGGER LOCK**, for hunting rifles, is a felt-lined metal case that fits over the trigger and may be secured in place by a brass-plated lock and key. In the field, unlocked, it can be removed by a flick of a handy release button.

Science News Letter, October 18, 1947

"Lead" pencils contain no metallic lead but a graphite-clay.

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DENTISTRY

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MEDICINE

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NUTRITION

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